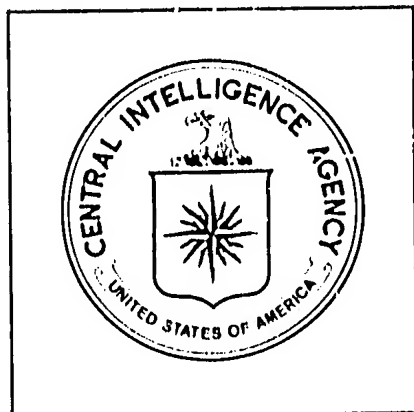


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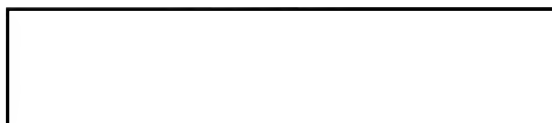
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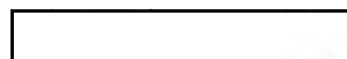
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Recent Soviet Publication in Acoustic Transducer Materials Research Indicates Little Progress: Materials scientists at the Acoustics Institute of the USSR Academy of Sciences are continuing research on ferroelectric lead-barium niobate (LBN-- $\text{Pb}_{0.6}\text{Ba}_{0.4}\text{Nb}_2\text{O}_6$) in an effort to produce high-quality acoustic power transducers which is acknowledged by them as continuing to present a challenge. LBN is credited by the scientists as being equivalent in this application to lead zirconate-titanate (LZT). The Soviets claim that their investigations of the properties of LBN with various additives have contributed to the development of an entire series of new materials for acoustical applications.

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Comment: On numerous occasions the Soviet have claimed advantages of LBN over LZT and may, therefore, be using it in acoustic power transducers

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The Soviets may have moved toward LBN because LZT is difficult to fabricate and because poor quality samples as well as use of the wrong additives in LZT may have given LBN the edge.

All current evidence points to the Soviets' continued use of outmoded magnetostrictive materials and, to a lesser extent, the dated ferroelectric material, barium titanate, in power

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transducers for operational sensors. Use of LBN would be a distinct improvement over either for this application.

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Soviets Have TV Tube Production Problems: Soviet-made anode buttons--used to connect the high voltage lead to the picture tube--are out-of-round, rusty, and the wrong size.

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poor quality buttons could explain much of the difficulty the Soviets appear to be having in manufacturing TV tubes. The use of improperly designed, and imprecisely machined buttons would make hermetic sealing of the tubes difficult. In turn, lack of adequate sealing could lead to implosion during evacuation and baking processes. The problem apparently is widespread since the Soviets use the same buttons for both black and white and color tubes, even though design requirements are not the same. The experts estimate the Soviets could be losing about 25 percent of the tubes in production.

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Comment: Since implosion failures generally take place toward the end of the assembly process, the high tube failure rate leads to large economic losses, currently estimated at \$10 to \$20 million annually. Large losses are likely to continue until adequate quality control techniques and equipment are introduced into the manufacturing process. Toward this end, the Soviets have been negotiating for several years with large US electronics firms for TV tube manufacturing and testing equipment and technology.

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A New Mode of East European Technological Cooperation is Described: A recent Soviet commentary on technological cooperation among countries of the Council for Mutual Economic Assistance (CEMA) notes the achievements in technological and economic integration over the last 15 years in electric power production and transmission systems, oil and gas distribution, and in other enterprises. Technological cooperation in these and other fields is now being facilitated through the establishment of international associations for planning, developing, manufacturing and marketing of engineering products. These associations include Interatomenergo for atomic energy development, Interelectro for

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electrical product development, and other similar associations. These associations will cooperate in providing equipment and technical assistance and will permit the efficient production of high quality products for export. [REDACTED]

Comment: CEMA's scientific and technological activities strongly reflect Soviet policies for integrating the efforts of the socialist countries. Recently, both Soviet and CEMA policies have stressed more comprehensive, long-range planning and stronger organizations for carrying out cooperative technological programs. To meet this need, the "international associations" mentioned above were created in 1973 and appear to be increasing in number. They probably were designed by the Soviets to counter independent tendencies of some of the East European countries to establish new ties with other socialist countries and to provide a better means to compete with Western multinational corporations and large trading firms in international trade. In the future, the CEMA countries can at least be expected to become more active in their collective and individual S&T dealings with other nations, if not more competitive. [REDACTED]

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